NEBRASKA FORESTRY TECHNICAL NOTE, No. 63

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GUIDE FOR EVALUATION OF SURVIVAL FOR CONSERVATION TREE AND SHRUB PLANTINGS

Establishing tree and shrub plantings in Nebraska is more than a one-year commitment. Certifying that trees/shrubs are planted does not mean they are established. Replanting, weed control, livestock exclusion, animal damage control and other appropriate operation and maintenance activities are necessary components in establishing tree/shrub plantings. A minimum of 3-5 years of close monitoring and maintenance is needed after the initial planting to ensure that trees or shrubs get off to a good start. It is also important that proper maintenance is on going thereafter. The purpose of the planting must be considered when the tree/shrub planting is evaluated. The number of surviving trees/shrubs must have the potential to provide the expected long-term benefits that the planting was designed for (i.e. wildlife cover, erosion control, livestock protection, riparian area protection, timber, firewood, crop protection, etc.). Establishment guidelines are listed below to assist in determining whether tree/shrub survival is adequate after three growing seasons.

Tree/Shrub Establishment (612), Wetland Wildlife Habitat Management (644), Upland Wildlife Habitat Management (645), Critical Area Planting (342);

Criteria:

1. Tree/shrub plantings for these practices are considered adequate after three growing seasons when
   a) Survival for the entire area is equivalent to at least 70 percent of the criteria for seedling plantings in the appropriate practice standard.
   b) No significant gaps or voids are present.

2. Direct seeded or natural regeneration (volunteer) trees/shrubs may be included for evaluation of survival if proper maintenance is on-going, tree/shrub species are adapted to the site and meet conservation practice objective(s) and practice standard criteria.

Windbreak/Shelterbelt Establishment (380), Windbreak Renovation (650);

Criteria:

1. Windbreaks/Shelterbelts are considered adequate after three growing seasons when:

a) One or two row windbreaks - minimum of 90 percent survival overall without any gaps that would deter the function of the windbreak and proper maintenance is on-going.
b) Multi-row windbreaks (three or more rows) - a minimum of 80 percent survival without any gaps that would deter the function of the windbreak windbreak and proper maintenance is on-going.

Riparian Forest Buffer (391);

Criteria:

1. The riparian forest buffer planting is considered adequate after three growing seasons when the following are achieved:
   a) A minimum of 850 small shrubs, 310 large shrubs or small trees or 150 large trees per acre are present. Small shrubs, large shrubs or small trees, and large trees are defined by their expected size at 20 years of age. Refer to Riparian Forest Buffer 391 Practice Standard for tree/shrub height categories, and to Conservation Tree/Shrub Suitability Groups, Section II Windbreak Interpretations in the Field Office Technical Guide for predicted/average 20 year heights.
   b) No significant gaps or voids are present.
   c) Proper operation and maintenance is on going.

2. Direct seeded or natural regeneration (volunteer) of desirable trees/shrubs may be included for survival evaluations if proper maintenance is on-going, tree/shrub species are adapted to the site and are consistent with conservation practice objective(s) and practice standard criteria.

On-site Procedure for Survival Evaluation:

1. Status of the tree/shrub planting survival should begin in the first growing season after initial planting. Verification on whether the planting is considered adequate in the third growing season should be performed in late summer or early fall. Professional judgement shall be used when determining whether the planting is established and will serve the purpose for which it is intended.

2. Replanting before or after the third growing season shall be discussed in the written plan or contract so the landowner is fully aware of the establishment objective and operation and maintenance needed. This shall be provided by late summer or early fall of the third growing season. An inventory of replanting and operation and maintenance needs during annual status reviews will help the landowner accomplish the establishment objective.

3. The entire planting shall be viewed to ensure that the planting is adequate and that there are no areas with significant voids or gaps. These areas will be

replanted even though the minimum required overall survival percentage has been attained.

4. A random sampling procedure can be used to ensure that the desired stand is present. The area selected shall be a random area that is representative of the planting. It shall represent at least 10 percent of the planting area or a minimum of 100 trees for smaller plantings (<1000 trees and/or shrubs.) whichever is greatest.

   Example: 3,000 trees planted (3,000 x 0.10) = 300 trees to be checked. 500 trees planted (500 x 0.10) = 50 trees; however, 100 trees need to be checked since that is the minimum.

   Suggested method: Distribute your sample plots throughout the planted area using linear plots by number of trees (e.g., checking survival of 10 trees or shrubs per linear plot.)

   Example: 300 trees sampled, 10 trees checked per linear plot with 30 plots distributed throughout planting. The number of trees per plot would be variable with consideration given to getting a representative sample throughout the planting.

5. Higher survival may be required on critical areas within a particular planting whether for timber, wildlife, or erosion control. Trees and shrubs that have very poor vigor and/or it appears that they will not survive or perform as intended shall not count toward survival requirements.

6. When replanting is necessary plans should take into account causes of the initial plant failure. Adjustments will be made where needed.